Bayesian estimation in accelerated life testing

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Résumé en anglais	A common problem of high-reliability computing is, on the one hand, the magnitude of total testing time required, particularly in the case of high-reliability components; and, on the other hand, the number of devices under testing. In both cases, the objective is to minimise the costs involved in testing without reducing the quality of the data obtained. One solution is based on Accelerated Life Testing (ALT) techniques which permit decreasing the testing time. Another solution is to incorporate prior beliefs, engineering experience, or previous data into the testing framework. It is in this spirit that the use of a Bayesian approach can, in many cases, significantly reduce the number of devices required. This paper presents a study of the Arrhenius-Exponential model by an evaluation of parameters using Maximum Likelihood (ML) and Bayesian methods. A Monte Carlo simulation is performed to examine the asymptotic behaviour of these different estimators.
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